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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,356	01/13/2004	Motoari Ota	0649-0933P	9821
2292 7590 10/22/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER HOLT, DAVID L	
			ART UNIT 2622	PAPER NUMBER
			NOTIFICATION DATE 10/22/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/755,356	<b>Applicant(s)</b> OTA ET AL.	
	<b>Examiner</b> David Holt	<b>Art Unit</b> 2622	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-6 and 10-12 is/are allowed.
- 6) ☒ Claim(s) 1 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1, 7, 8, and 9 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (U.S. Patent 6,236,434), in view of Tandon (U.S. Patent 6,961,157).

**Claim 1**, a solid-state imaging element, has the following limitations, taught by Yamada:

- a plurality of photoelectric converting regions which are arranged on a surface of a semiconductor substrate along a row direction and a column direction perpendicular to the row direction (Solid state image pickup device, Fig. 2)

Yamada does not teach the following limitations. Yamada does not give details of the construction of individual photosites. Tandon, who teaches a cell comprised of multiple photosites, does teach the following limitations:

- color filters ("[T]he different photosites are indicated as being filtered to admit primary colors such as red (R), green (G), or blue (B) light, although other types of

filters, such as for admitting orange, yellow, magenta, or cyan (i.e., other types of primary colors) can be envisioned." '157 Patent, col. 4, lines 5-10.)

- each of the photoelectric converting regions contains a main region having a relatively wide light-receiving area and a sub-region having a relatively narrow light-receiving area (Cell 16, Fig. 3. Particular attention to the size and shape of the main G regions and the narrow R and B regions. "[D]ifferent linear arrays will have different spatial resolutions, such as in the horizontal direction as illustrated in the Figures." '157 Patent, col. 3, lines 61-63.)
- the color filters are provided above the main regions and the sub regions, respectively, in some of the plurality of photoelectric converting regions, colors of the color filters provided above the main regions are different from those of the color filters provided above the sub regions (Cell 16, Fig. 3. Particular attention to the size and shape of the main G regions and the narrow R and B regions. "[E]ach set of photosensors which in any sense function together, such as by having a complementary set of color filters, will be referred to as a 'cell' 16." '157 Patent, col. 3, lines 55-58.)
- the some of the plurality of photoelectric converting regions output photoelectric converting signals having different spectral sensitivities from the main region and the sub-region (Cell 16, Fig. 3. Particular attention to the size and shape of the main G regions and the narrow R and B regions.)

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to combine the solid state imaging element taught by Yamada

with the imaging cell taught by Tandon, because this cell "significantly increas[es] the efficiency at which original images can be converted into digital data, such as by decreasing the amount of digital memory space required to retain the image data." '157 Patent, col. 1, lines 62-65. Furthermore, the layout taught by Yamada is "capable of suppressing false signals such as moire, improving a photoelectric conversion efficiency, realizing high integration, optimizing spatial sampling of an image, and reducing a difference of the characteristics between photosensors to be caused by a position displacement of photosensors and column direction charge transfer devices during manufacture processes." '434 Patent, col. 2, lines 58-65.

**Claim 7/1** adds the following limitation, taught, furthermore, by Tandon:

- the spectral sensitivity is determined by a color filter positioned above said main region and said sub-region ("[T]he different photosites are indicated as being filtered to admit primary colors such as red (R), green (G), or blue (B) light, although other types of filters, such as for admitting orange, yellow, magenta, or cyan (i.e., other types of primary colors) can be envisioned." '157 Patent, col. 4, lines 5-10.)

**Claim 8/1** adds the following limitation, taught, furthermore, by Yamada:

- the digital camera mounts thereon the solid-state imaging element recited ("Charge transfer type solid state image pickup devices or so-called charge coupled devices (CCD) have been developed, and they are used with cameras of televisions, video tape recorders and the like of NTSC standards." '434 Patent, col. 1, lines 16-19.)

**Claim 9/1** adds the following limitation, taught, furthermore, by Yamada:

- in each photoelectric converting region, the main region and the sub region are divided by element isolation region in plan view (Cell 16, Fig. 3. There is clearly shown white space between the G and R/B photosites.)

***Allowable Subject Matter***

4. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in dependent form, but based on only the allowable independent claims indicated below.
5. Claims 2-6 and 10-13 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter: with regards to **claim 2**, the prior art does not teach "a first sort of photoelectric converting region in which both the main region and the sub-region output photoelectric converting signals having a first spectral sensitivity; a second sort of photoelectric converting region in which the main region outputs a photoelectric converting signal having a second spectral sensitivity and the sub-region outputs a photoelectric converting signal having a third spectral sensitivity; and a third sort of photoelectric converting region in which the main region outputs a photoelectric converting signal having the third spectral sensitivity and the sub-region outputs a photoelectric converting signal having the second spectral sensitivity."

With regards to **claim 3**, the prior art does not teach "a first sort of photoelectric converting region in which both the main region and the sub-region output photoelectric converting signals having a first spectral sensitivity; a second sort of photoelectric converting region in which the main region outputs a photoelectric converting signal

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having a second spectral sensitivity and the sub-region outputs a photoelectric converting signal having a third spectral sensitivity; and a third sort of photoelectric converting region in which the main region outputs a photoelectric converting signal having the third spectral sensitivity and the sub-region outputs a photoelectric converting signal having the second spectral sensitivity."

The prior art teaches photosensors having multiple regions of different size and spectral sensitivity, but does not clearly anticipate three categories of photosensor, each characterized by the varying spectral sensitivities of its regions.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Holt whose telephone number is (571) 270-3227. The examiner can normally be reached on Monday - Friday, 7:30 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DLH 10/15/2007

  
NGOC-YEN VU  
SUPERVISORY PATENT EXAMINER